

Title (en)

LNG cryogenic power generation system using molten carbonate fuel cells.

Title (de)

LNG cryogenes Stromerzeugungssystem, das Brennstoffzellen mit geschmolzenem Carbonat verwendet.

Title (fr)

LNG-système de puissance cryogénique utilisant de piles à combustible au carbonate fondu.

Publication

EP 0467051 B1 19950426 (EN)

Application

EP 91108578 A 19910527

Priority

JP 14039890 A 19900530

Abstract (en)

[origin: EP0467051A1] An LNG cryogenic power generation system using a molten carbonate fuel cell (1) is equipped with a CO₂ separator (II). The CO₂ separator (II) takes advantages of cryogenic LNG in a manner such that CO₂ among gases discharged from an anode chamber (4) of the fuel cell (1) is liquefied with cryogenic LNG and separated from the anode exhaust gas. Cell reactions take place at a cathode chamber (3) and the anode chamber (4) of the fuel cell (1) to cause power generation as the oxidizing gas which contains CO₂ is fed to the cathode chamber (3) and the fuel gas is fed to the anode chamber. LNG is reformed by a reformer of the fuel cell and (4) the reformed gas is fed to the anode chamber (4). During the cell reaction, CO₂ of the oxidizing gas fed to the cathode chamber (3) is transferred as carbonate ion to the anode chamber (4) and CO₂ is enriched or concentrated before expelled from the anode chamber (4). This anode gas is introduced to the CO₂ separator (II). In the CO₂ separator (II), CO₂ among the anode gas is liquefied by cryogenic LNG and separated from the anode gas. As a result, the power generation and the CO₂ recovery are carried out at the same time, and an amount of CO₂ discharged to atmosphere is remarkably reduced. <IMAGE>

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